

*What is claimed is:*

1        1. An arrangement for inserting an alternative media file into a streaming  
2 multimedia file destined for at least one predetermined end-user, the arrangement  
3 comprising  
4              a first cache for storing a received alternative media file;  
5              a second cache for storing a streaming multimedia file;  
6              a control unit for receiving as a first input a control signal from said first cache  
7 and generating as an output a switching control signal indicative of the presence or  
8 absence of a complete file being stored in said first cache; and  
9              a switching mechanism, responsive to said control unit switching output signal,  
10 said first cache and said second cache for providing as an output, directed to the at least  
11 one end-user, a stream selected one of said first cache, said streaming multimedia file and  
12 said second cache, as controlled by said switching output signal from said control unit.

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1        2. The arrangement as defined in claim 1 wherein the control signal output from  
2 the first cache indicates that a complete alternative file is stored and is ready for  
3 transmission to the predetermined at least one end-user, or will be ready in time to  
4 transmit.

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1        3. The arrangement as defined in claim 1 wherein the control signal output from  
2 the first cache indicates that an alternative file is available to be streamed to said first  
3 cache from an external server and is ready to begin transmission to the predetermined at  
4 least one end-user.

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1        4. The arrangement as defined in claim 1 wherein the switching mechanism  
2 supplies as an output the streaming multimedia file in the absence of a signal from the  
3 control unit that an alternative file is ready to transmit.

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1        5. The arrangement as defined in claim 1 wherein the switching mechanism  
2 supplies as an output the cached alternative file stored in said first cache in response to a  
3 signal from the control unit that an alternative file is ready to transmit.

1           6. The arrangement as defined in claim 1 wherein the control signal input to said  
2 control unit indicates that the alternative media file transfer to the predetermined at least  
3 one end-user is completed, the control unit thereafter supplying a switching output signal  
4 to said switching mechanism request said switching mechanism to supply as the output  
5 the cached streaming multimedia file.

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1           7. The arrangement as defined in claim 1 wherein the arrangement further  
2 comprises

3           a billing system coupled to the control unit for receiving information from said  
4 control unit regarding the identity of each alternative media file transmitted, the identity  
5 of the at least one end-user, and related statistics regarding the transmission of various  
6 alternative media files to a plurality of different end-users.

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1           8. The arrangement as defined in claim 7 wherein the related statistics include the  
2 number of times each alternative media file is requested during a predetermined period of  
3 time.

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1           9. The arrangement as defined in claim 7 wherein the related statistics includes  
2 the time of day and date that each alternative media file is requested.

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1           10. The arrangement as defined in claim 1 wherein the alternative file is defined  
2 as an advertisement file.

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1           11. The arrangement as defined in claim 1 wherein the alternative file is defined  
2 as an emergency information file.

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1           12. The arrangement as defined in claim 1 wherein the arrangement is disposed at  
2 a local point of presence in a communication network.

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1           13. The arrangement as defined in claim 12 wherein the arrangement is disposed  
2 at a headend location in an HFC communication network.

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1           **14.** The arrangement as defined in claim 12 wherein the arrangement is disposed  
2 between a wide area data network and a local distribution network.

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1           **15.** The arrangement as defined in claim 12 wherein the arrangement is disposed  
2 between a telecommunications central office and a DSL communication network.

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1           **16.** The arrangement as defined in claim 12 wherein the arrangement is disposed  
2 between a telecommunications central office and wireless communication network.

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1           **17.** The arrangement as defined in claim 12 wherein the arrangement is disposed  
2 in a communications device at an end-user location.

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1           **18.** The arrangement as defined in claim 17 wherein the communications device  
2 comprises a set-top box.

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1           **19.** The arrangement as defined in claim 17 wherein the communications device  
2 comprises a residential gateway device.

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1           **20.** The arrangement as defined in claim 1 wherein the arrangement further  
2 comprises a rule server for retrieving information related to the predetermined at least  
3 one end-user and selecting the alternative media file based on said retrieved information  
4 and the specific content of the streaming multimedia file.

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1           **21.** A method of inserting an alternative media file in a streaming multimedia file  
2 destined for a predetermined end-user, the method comprising the steps of:

3           a) storing a selected alternative multimedia file in a first cache at a local point of  
4 presence;

5           b) establishing a communication link between said streaming multimedia file and  
6 said predetermined end-user;

7           c) transmitting said streaming multimedia file to said end-user;

8           d) switching transmission from said streaming multimedia file to said alternative  
9 media file stored in said first cache;

10          e) storing in a second cache said streaming multimedia file received during the  
11 transmission of said alternative media file; and

12          f) upon completion of said alternative media file, accessing said second cache and  
13 resuming transmission of the cached streaming multimedia file.

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1           **22.** The method as defined in claim 21 wherein in performing step a), the  
2 following steps are performed:

3            a1) receiving a request from a predetermined end-user for a streaming multimedia  
4 file;

5            a2) accessing a rule server with the identity of said end-user, content provider  
6 and/or content identity;

7            a3) using said identity to select an appropriate type of alternative file for said  
8 predetermined end-user and retrieving location information regarding said selected  
9 alternative file;

10          a4) sending a request for file transfer from a server storing said selected  
11 alternative file to the first cache.

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1           **23.** The method as defined in claim 21 wherein in performing step a), the  
2 following steps are performed:

3            a1) detecting the start of a streaming multimedia flow;

4            a2) accessing a rule server with the identity of said end-user, content provider  
5 and/or content identity;

6            a3) using said identity to select an appropriate type of alternative file for said  
7 predetermined end-user and retrieving location information regarding said selected  
8 alternative file;

9            a4) sending a request for file transfer from a server storing said selected  
10 alternative file to the first cache.

1           **24.** The method as defined in claim 21 wherein in performing step d), switching  
2 from said streaming multimedia file to said alternative file when recognizing that an  
3 alternative file is available.

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1           **25.** The method as defined in claim 21 wherein in performing step d), switching  
2 from said streaming multimedia file to said alternative file at the beginning of said  
3 multimedia file.

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1           **26.** The method as defined in claim 21 wherein in performing step d), switching  
2 from said streaming multimedia file to said alternative file at the end of said multimedia  
3 file.

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1           **27.** The method as defined in claim 21 wherein in performing step d), switching  
2 from said streaming multimedia file to said alternative file at any location during  
3 transmission of said multimedia file.

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1           **28.** The method as defined in claim 21 wherein in performing step d), providing  
2 transition segments between the streaming multimedia file and the alternative file.

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1           **29.** The method as defined in claim 28 wherein the transition segments provide  
2 “fade in” and “fade out” between said files.

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1           **30.** The method as defined in claim 21 wherein in performing step d), switching  
2 from said streamlining multimedia file to said alternative file based on a timing signal  
3 embedded in said streaming multimedia file.

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